

CLAIMS

1. A lithium polymer battery including: a positive electrode comprising a lithium-containing complex oxide; a negative electrode comprising a material capable of absorbing and desorbing a lithium ion; and a separator comprising a liquid organic electrolyte and a host polymer retaining said organic electrolyte;

wherein said host polymer is a crosslinked copolymer, which has a main-chain comprising a vinylidene fluoride unit, and a side-chain comprising an alkylene oxide unit and at least one of an acrylate unit and methacrylate unit.

2. The lithium polymer battery in accordance with claim 1, wherein the content of said side-chain in said copolymer is 1 to 30 wt%.

3. The lithium polymer battery in accordance with claim 1, wherein said side-chain is composed of polyethylene glycol diacrylate or polyethylene glycol dimethacrylate, said diacrylate or dimethacrylate having an average molecular weight of 300 to 1,600.

4. The lithium polymer battery in accordance with claim 1, wherein at least one of said positive electrode and negative electrode contains a binder comprising a modified polyvinylidene fluoride having an oxygen-containing group.

5. The lithium polymer battery in accordance with claim 1, wherein said positive electrode contains a binder comprising a modified vinylidene fluoride-hexafluoropropylene

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copolymer having an oxygen-containing group.

6. The lithium polymer battery in accordance with claim 1, wherein said negative electrode contains a binder comprising an ionomer which contains at least one of an acrylate unit and methacrylate unit.

7. The lithium polymer battery in accordance with claim 1, wherein said negative electrode contains a binder comprising a particulate rubber containing an acrylonitrile unit, a styrene unit and a butadiene unit.

8. A method for producing a lithium polymer battery including:

(1) a step of preparing an electrode assembly by laminating a positive electrode and a negative electrode while interposing therebetween a copolymer, said copolymer having a main-chain comprising a vinylidene fluoride unit and a side-chain comprising an alkylene oxide unit and at least one of an acrylate unit and methacrylate unit;

(2) a step of housing said electrode assembly in a battery case, and then introducing a polymerization initiator for said copolymer and a liquid organic electrolyte therein and sealing said battery case; and

(3) a step of forming a separator between said positive electrode and negative electrode by heating said sealed battery to crosslink said copolymer and make the crosslinked copolymer retain said organic electrolyte.

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